The Royal College of Pathologists
Pathology: the science behind the cure

What would you say?

Discussion workshop for secondary school and undergraduate students.

Viruses & Vaccines

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This resource pack is aimed at teachers, lecturers and pathologists and guides them through running a discussion workshop with students aged 12 and up. It is suitable for use with secondary school students, and with undergraduates studying relevant courses such as medicine, biomedical science and healthcare science.

The accompanying discussion cards can be downloaded and printed for use with groups in person, or sent to students or shown on screen if the workshop is being run online/ remotely.

If you're not a pathologist and would like to involve one as a speaker or facilitator at your workshop contact the Royal College of Pathologists' public engagement team on publicengagement@rcpath.org. Please give around 6 weeks' notice for this.

Introducing the workshop

Below is a possible introduction for the lead facilitator to use to open the session. Students can also be sent this in advance as a hand-out to read in advance of the workshop. You could also create introductory slides using our Viruses and Vaccines PowerPoint template (find it on the **Viruses and Vaccines** page)

Throughout the COVID-19 pandemic everyone has been asked to changebehaviours in many ways, for the benefit of their own health and that of their families, friends and society as a whole. However, many of us haven't been told why exactly these restrictions are in place, and many of us look forward to getting back to 'normal'. It is possible that many people in society don't really understand the "rules". There is a lot of useful information may on the NHS and World Health Organisation websites and plenty of real experts out there but do people have time to read and engage with this, and is it truly easily accessible to everyone? There is currently an 'infodemic' (an overabundance of information online and offline) related to the pandemic and vaccines: who do people listen to, who do they believe?

When we understand the basics of how science works, we can see how our behaviours can cause real positive change. It's a bit like knowing why each ingredient is present in a recipe - when you know all that, you don't need to follow an actual recipe in order to make an amazing dish. When we understand how diseases are transmitted, we can make sure everyone is safe by changing our own behaviours, without waiting for rules to be put in place.

The behaviours we've learnt now are ones we can continue with as part of our lives going forward, not just for the purposes of this pandemic. For example, these changes, such as regular handwashing and sanitising, maintaining social distancing and wearing masks, have had positive affects on the numbers suffering and dying from 'flu. Improved hygiene may also reduce rates of infection from faecal oral transmitted infections. During the COVID-19 lockdown hospitals have reported a reduced rate of minor injuries and illnesses in their A&E departments.

While we should all respect the feelings and concerns of everyone around us, we should be aware of those spreading misinformation and to help those who are vulnerable to make informed decisions by keeping them up to date with real scientific evidence and accurate communication channels. Not to mention celebrating how amazing it has been to have so many vaccines come to our rescue. It's been a truly global effort with several research groups working together to fight this pandemic. The speed at which technology is progressing only makes the development of medicines even faster. We don't seem so bothered that year on year we have better smartphones and apps. Yet, the concerns about speedy vaccine technology exist. This was important research that took priority over everything else. As a global pandemic it was in everyone's interest to find a vaccine fast. Wealthy celebrities donated funds to the cause, and even signed up to be part of the clinical trials. Would this have happened had it not been a global pandemic? Scientists have known about SARS-CoV-1 and MERS viruses for a long while now, so some knowledge and understanding of how these respiratory viruses work was already there. Scientists are always curious, wanting to know the answers and striving to find cures to help us all, as quickly and safely as they can.

Discussion workshop

This activity aims to give young people the chance to discuss diseases and vaccines, and to explore how they might explore these topics with others who have a range of experience, opinions and feelings.

The role of the facilitator is to introduce the session and explain what the students need to do using the information above and below.

1. Open the session an introduction based on the information above.
2. Tell the students they will now discuss some statements gathered from different individuals who are experiencing the pandemic in a wide range of environments and contexts.
3. Say that there are no right or wrong answers and that there will be an opportunity to share their thoughts with the wider group.
4. Students will be split into groups (either in their classroom or via virtual breakout rooms depending on their age) to discuss their chosen scenarios.

This article is a useful read when preparing to facilitate this session: **click here**

How to introduce the activity to the students

In this activity you have been tasked with helping various individuals who say they don't know how to talk to their families, friends, colleagues and general public about what they have said or done.

Pick three cards and read the statements. How would you help these individuals convince their friends, families and colleagues based on what you already know about disease transmission, viruses and vaccines? What else do you feel you need to know in order to help them? We will give you 25 to 30 minutes to discuss your three statements, and then will ask for a spokesperson from each group to update the wider group on what you've been discussing.

There is also a pack of larger statement cards that can be printed out and used in the classroom or shared on screen at online events. ***Click here***

University Student:

My best friend keeps saying when politicians and celebrities aren't following the rules, why should I?

ITU doctor:

I don't think people out there understand how hard it is for us. We haven't enough staff, and we have to do things such as turning a patient over several times just to help them breathe (it helps with ventilation when someone's oxygen levels are dropping). Turning patients requires several of our team to help because tubes etc. can be dislodged. Everything is so tiring and we too miss our families.

ITU nurse:

I held the hands of someone who died today. It's heart-breaking. And even more so when you hear people call this pandemic a hoax.

Cleaning staff:

I wake up at 5am every morning just to get to the hospital to make sure everything is sanitised and clean. My 21-year old son doesn't bother with hand sanitiser anymore, he says 'it's time to get things back to normal.'

Post office worker:

People come in every day not wearing their masks. They're indoors and we don't have great ventilation. They glare at me when I ask them to please put their masks on.

Teacher:

I heard a parent say that they don't understand the graphs in the COVID-19 briefings, so they don't watch them. Instead they get all the information they need from friends on their messaging app.

Teacher:

It's hard work keeping young pupils in a bubble. They want to chat with each other. Pre-pandemic we'd often joke about how teachers are the first ones to catch germs from their pupils, so some of us find it odd that no one is listening to our concerns about safety. Not just for us and our pupils, but for all our families too.

Teacher:

There's nothing worse than having to comfort a child who thinks they might have passed on the virus to their family member who has just passed away. I want nothing more than to teach my pupils, but I also want to tell the authorities not to open schools so quickly.

Parent:

My neighbour went on holiday to Italy over the summer. They said they didn't quarantine or they'd lose precious holiday time, and didn't wear their masks in case they got tan lines.

Parent:

Other parents keep trying to pop over to have a chat and coffee with me, and to let our children play together since they'll be at school together anyway. This makes me uncomfortable as they keep saying, 'well, we're not really breaking the rules, it's only us, it won't make a difference.'

Grandparent:

Of course I'm looking forward to seeing my children and grandchildren, but I don't want any of them to get ill. Until we've all had our vaccinations, we're not meeting. I'm willing to wait. Why can't others wait a little while longer too? We're so lucky to have vaccines. I can remember the times of smallpox and polio. S uch awful diseases.

Shopkeeper:

I've lost so many members of my family to this disease. I don't wish this on anyone else. But listening to my fellow shop owners worried about their businesses makes me want to tell them there's nothing more important than life and health.

Gym owner:

It's important for us to stay open for the health and well being of all our members, but at the same time we want everyone to be safe. We've had staff members in tears as they can't work any longer, and we don't know what to say to them.

Pub owner:

We know we'd like to be open, but we also know that having customers in close proximity is not safe for them or us. We'll do our best to serve and support the community, but we're always being asked when are we going to open properly?

Restaurant worker:

I know the boss was on at the government to reduce the distance for social distancing so we could open, but if germs can still spread far, I feel scared knowing someone could take their mask off to eat, and even being one metre away they could still cough or shout their germs at me.

Business owner:

All our businesses are suffering, some more than others. But at the same time, if we're so busy trying to save the economy, but people are dying, there aren't going to be any people left to enjoy my business. What will I do then?

Airport worker:

We know about cross-border spread...being on planes means that viruses can spread fast. There's also close human-to-human contact. But I can't even convince my boss...let alone anyone higher. Can we really close our borders like other countries? I might be okay, but my colleagues won't likely survive being out of work.

Plumber:

I didn't want to say, it, but I'm going to have to say 'jab or no job' to some of my employees. I always assume I'm infected when I haven't even caught the disease. I wish other people would too.

Epidemiologist:

Over-responding is better than delaying action, and we can learn so much from other countries. Why does no one want to learn from other countries who are doing so well?

Vaccine scientist:

We have vaccines now, but we can't just stop our good behaviours because of that. Hearing how people want to mix with each other and hug grandkids and so on straight away is a little worrying. Vaccines are preventative, not a cure.

Journalist:

I keep on top of all the news stories and even write them. But I don't know what to say when a close friend says they're not getting the vaccine because they're fit and healthy, or that they've already had COVID-19.

Imam:

I am telling people to verify before they amplify. But it's hard. There is a lot of information circulating telling people that the vaccine is not halal.

Vicar:

My congregation are taking heed to government advice and following the rules and regulations. But ultimately they will choose what they deem as right. Religion has been important in coping with stress and anxiety, they need their community, but I'm worried about the lack of social distancing.

Pujari/Iyer:

We are not opening the temple for regular festivities, as we know that religious congregations have been the cause of mass outbreaks. Yet it's so difficult for us to stop people wanting to worship, turning up at the temple doorstep wanting to be let in, and wanting us to carry out ceremonies for births, marriages and funeral rites.

Scientist:

I overheard someone at the supermarket say that we should just treat this like chicken pox and have parties, all mingle until we all get it, and then we'll have herd immunity. The natural way! I didn't know whether to interrupt and tell them that herd immunity is for when we're all vaccinated.

Immunologist:

There are a lot of concerns about allergies, but people who have severe allergies have to be careful about everything anyway. We have experts on standby at vaccine centres for such emergencies, but how do I get this message out there?

Teenager:

I heard someone talking on the phone about looking for all the loopholes in the rules just so they could hang out together. Looking for loopholes doesn't sound like a kind way to behave.

Teenager:

I don't think my friends understand the point of bubbles. They think they can go and visit one group of friends and then go and meet another group of friends, but as long as it's six different groups of friends maximum, that's the rule of six sorted. Some huge bubble!

Teenager:

I wish people didn't keep telling us all to use our common sense. It's not actually common sense, it's an understanding of science that matters and how diseases are transmitted. Not everyone has that or wants to learn.

Man in his late 20s:

My family doesn't understand lockdown. They think it's infringing on their human rights. I don't know how to convince them that it's to help keep us all alive as if they NHS is overwhelmed they're not going to be able to help everyone. They'll have to choose. I don't want them to choose saving me over my family? It scares me.

Middle-aged woman:

My partner says he's not sure what to believe anymore. He can't deal with the science changing all the time. But science does change. If it didn't we'd all still think the Earth was flat, climate change is made up and sun travels in the sky around us!

30-year old officer worker:

My sister thinks that she doesn't want to have any of the vaccines. It's been developed too fast and not been tested enough and she doesn't trust pharmaceutical companies.

University student:

My uncle is 55 and thinks he's healthy and fit so he won't get seriously ill if he catches COVID-19. He doesn't even want the vaccine for that reason.

Man in his 60s:

My niece is in her 30s and thinks she'll become infertile if she has a vaccine. She says she doesn't want to put genes from a virus in her body, as who knows what it'll do.

57-year old woman:

I'm worried that once most of us get the vaccine, everyone will stop social distancing and stop wearing masks and act as if nothing ever happened. But there will still be unvaccinated people and they might still do the same. What if this virus keeps mutating?

Businesswoman:

I'm never sure what to say when someone says, 'But we take risks every day, when we drive our cars, cross the roads etc.' It really doesn't feel the same as that.

35-year old woman:

I live in a lovely place, full of diverse communities and I loved hanging out with my neighbours before the pandemic. Many are elderly and lonely because they are shielding. The Government now wants them to come out of their houses, get public transport to get the vaccine. They're not keen on the vaccine for this reason. It's not that they're against science. What can I do?

Medical student:

Some people don't want to take the vaccine right now. They want to wait and see how other people react to it first and don't want to be guinea pigs. One of my friends is waiting for all the politicians to have it first. How do I explain clinical trials to them?

Useful weblinks:

https://www.nhs.uk/conditions/coronavirus-covid-19/coronavirus-vaccination/coronavirus-vaccine/

https://english.elpais.com/society/2020-10-28/a-room-a-bar-and-a-class-how-the-coronavirus-is-spread-through-the-air.html

https://www.youtube.com/watch?v=2t_mQwTY4WQ&feature=emb_logo

https://vk.ovg.ox.ac.uk/vk/covid-19-vaccines

https://www.england.nhs.uk/statistics/statistical-work-areas/covid-19-hospital-activity/

Underselling the Vaccine -
https://www.nytimes.com/2021/01/18/briefing/donald-trump-pardon-phil-spector-coronavirus-deaths.html

https://www.theguardian.com/world/2021/jan/20/talking-can-spread-covid-as-much-as-coughing-says-research

https://zeynep.substack.com/p/small-data-big-implications

BBC News report from intensive care units during the second peak of the COVID-19 pandemic in the UK -
https://www.youtube.com/watch?v=OI0g4cz5-oM

https://www.bbc.com/future/article/20210127-covid-19-variants-how-mutations-are-changing-the-pandemic

https://wellcome.org/news/quick-safe-covid-vaccine-development

Also see our FAQs resource on the Viruses and Vaccines webpage.

Did you know?

More facts about viruses and vaccines

Smallpox is the only human disease that has ever been eradicated. In 1796, the British doctor Edward Jenner demonstrated that an infection with the relatively mild cowpox virus conferred immunity against the deadly smallpox virus. Cowpox was used as a natural vaccine until the modern smallpox vaccine was developed in the 19th century. From 1958 to 1977, the World Health Organization conducted a global vaccination campaign that eradicated smallpox. Although routine smallpox vaccination is no longer performed on the general public, the vaccine is still being produced to guard against bioterrorism and biological warfare. Find out more about how the world's first vaccine came about in our 'Blossom the Cow' activity video.

'Smallpox is the only human disease ever eradicated, a testimony to what we can achieve when all nations work together. When it comes to an epidemic disease, we have a shared responsibility and a shared destiny.' – Dr Tedros Adhanom Ghebreyesus, Director General of the World Health Organisation.

Measles is an infectious disease caused by a virus called Measles morbillivirus. Symptoms include a blotchy rash, fever, dry cough, runny nose, sore throat, inflamed eyes. In some cases, measles can lead to more serious, and even life-threatening symptoms.

Measles is one of three diseases that the MMR vaccine protects us against. The other two diseases are mumps and Rubella. The vaccine is usually given to babies and small children in two doses. Since a measles vaccine was introduced in the UK in 1968, Public Health England estimates that 20 million measles cases and 4,500 deaths have been averted. You can find out more about the MMR vaccine in our **Give It A Shot activity pack**.

Human papillomavirus and Cervical cancer: Human papillomavirus (HPV) is a group of viruses that are extremely common worldwide. Two HPV types (16 and 18) cause 70% of cervical cancers and pre-cancerous cervical lesions. The World Health Organisation have said cervical cancer could be the first cancer ever to be eliminated in the world if 90% of girls are vaccinated, 70% of women are screened and 90% of women with cervical disease receive treatment.

Polio is an illness caused by a virus called Poliovirus. It is now rare in the UK thanks to vaccination. It can cause paralysis and death although around three quarters of people who are infected with it will not experience symptoms. This means many people don't realise they have it so they can spread it to more vulnerable people without realising. The polio vaccine is given in a sugar cube.

A ward of polio victims, incarcerated inside 'iron lungs' in 1950s America. Many are children, their lungs paralysed, unable to breathe unaided. Thanks to vaccination, no-one had caught polio in the UK since the 1980s.

Photograph: Science History Images/Alamy Stock Photo.
Source: https://www.theguardian.com/society/2020/may/26/last-iron-lung-paul-alexander-polio-coronavirus

HIV stands for 'Human Immunodeficiency Viruses' They are two species of Lentivirus that infect humans. If untreated infection with HIV leads to a life-threatening illness called AIDs. This is short for 'acquired immunodeficiency syndrome'. Over time, this illness increasingly interferes with the immune system and leads to premature death. HIV is a lifelong condition but today can be managed with treatments, and most people who catch HIV can live a normal life. There is no vaccine for HIV but scientists are hopeful one can be developed.

Ever wondered why they're called 'vaccines'?

The word 'vaccine' is derived from the Latin word for cow (vacca), reflecting the origins of smallpox vaccination and Edward Jenner's experiments with cowpox.